

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants :	Michael F. Roberts et al.	Art Unit :	1744
Serial No. :	10/692,916	Examiner :	Mark Spisich
Filed :	October 24, 2003	Conf. No. :	9057
Title :	GUM MASSAGING ORAL BRUSH		

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Commissioner for Patents
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Alexandria, VA 22313-1450

REPLY TO FINAL OFFICE ACTION OF JANUARY 31, 2007

SUBMITTED WITH A REQUEST FOR CONTINUED EXAMINATION

An IDS is submitted herewith. Applicants respectfully request consideration of all the references. No claims have been amended since Applicants believe that all claims are allowable. Applicants submit the following comments, along with a Request for Continued Examination.

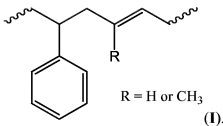
Claims 55 and 57-60 are pending; claim 55 being the only claim in independent form. Claims 55, 57 and 58 have been rejected as being obvious over Lion Corporation, Japanese Unexamined Utility Model Application No. 1-72128 ("J-128"), in view of Dolinsky, U.S. Patent No. 4,288,883 ("Dolinsky") and Chen., U.S. Patent No. 5,334,646 ("Chen"); and claims 59 and 60 stand rejected as being obvious over J-128, in view of Dolinsky and Chen, as applied to claim 55, and further in view of Muhler et al., U.S. Patent No. 3,613,143 ("Muhler").

Claim 55 features an oral brush that includes, in pertinent part, one or more elastomeric element(s), the elastomeric element(s) including a thermoplastic elastomer *having a Shore A hardness of 30 or greater*, the thermoplastic elastomer including *an oil plasticized styrene-ethylene-butylene-styrene block copolymer*. Applicants have found that the addition of an oil to the elastomer desirably lowers the coefficient of friction of the element or elements (especially when wet), improving mouth feel, safety, comfort, and even potentially improving the clinical benefit of the brush.

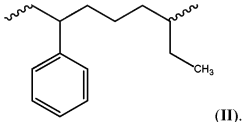
J-128 discloses an oral cleaning implement employing filaments composed of an engineering elastomer. Styrene-butadiene-styrene (R = H) and styrene-isoprene-styrene (R = CH₃) copolymers are disclosed, which may be represented by Structure I (shown below)

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In contrast, claim 55 requires a styrene-ethylene-butylene-styrene block copolymer, which may be represented by Structure **II** (shown below)



In addition to not disclosing or suggesting the required styrene-ethylene-butylene-styrene block copolymer, J-128 does not disclose or suggest the *oil* required by claim 55, and is completely silent as to the Shore A hardness of the thermoplastic elastomer, which claim 55 requires to be greater than 30.

Dolinsky discloses a combined toothbrush and gum massaging device that includes a plurality of relatively stiff bristles and one or more rows of massaging elements. Dolinsky does not disclose or suggest a *styrene-ethylene-butylene-styrene block copolymer*, much less an *oil plasticized styrene-ethylene-butylene-styrene*, as required by claim 55. In addition Dolinsky is silent as to the Shore A hardness of the thermoplastic elastomer, which claim 55 requires to be greater than 30.

Chen describes *gelatinous* compositions and articles that are formed from an intimate melt blend of poly(styrene-ethylene-butylene-styrene) triblock copolymer and *high* levels of a plasticizing oil (Abstract). By a high level of oil, Chen means that for every 100 parts by weight elastomer, there are from about 300 to about 1600 parts by weight plasticizing oil, or more

preferably from about 350 to about 1600 parts by weight (col. 2, lines 20-45). Apparently from the background of Chen, oil extended thermoplastic elastomers are known, e.g., from U.S. Patent Nos. 4,369,284, 4,618,213 and 5,153,254. However, as Chen explains at col. 1, lines 41-43, “they suffer certain lack of desired properties.” Chen goes on to explain at col. 1, lines 42-51 that Shell Technical Bulletin No. SC 65-75 teaches the use of poly(styrene-ethylene-butylene-styrene) triblock copolymers (Kraton G 1650 and G 1652) plasticized with oil, but apparently, according to Chen, “the compositions obtained tend to rupture and crumble when submitted to moderate shearing stress conditions.” According to the 2006 edition of the Merriam-Webster Online Dictionary, “gelatinous” means resembling gelatin or jelly. As would be understood by one of ordinary skill in thermoplastic elastomers, the hardness of elastomers is generally measured on the Shore A scale, while the hardness of gels (i.e., *gelatinous* materials) is generally measured on the Shore OO scale. For example, a fresh “gummy bear” candy is around 10 Shore OO (or about 2 Shore A; see, e.g., Machine Design, 72, August, 21, 2003, a copy of which was submitted November 17, 2006). Clearly, the *gelatinous* materials described by Chen are not the Applicants’ claimed thermoplastic elastomers *having a Shore A hardness of 30 or greater*.

Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness. In fact, the Examiner has not established even a single requirement of the three needed requirements to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the Examiner must establish (1) that the prior art reference (or references when combined) teach or suggest all the claim limitations; and (2) that there is some suggestion or motivation, either in the references themselves, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or references, or to combine reference teachings; and (3) that there is a reasonable expectation of success.

With regard to (1) above, Applicants respectfully submit the prior art references, when combined, do not teach or suggest all the limitations of claim 55. In particular, none of the prior art references teach or suggest one or more elastomeric element(s) including a thermoplastic elastomer *having a Shore A hardness of 30 or greater*, the thermoplastic elastomer including *an oil plasticized styrene-ethylene-butylene-styrene block copolymer*. Thus, for this reason alone, a *prima facie* case of obviousness has not been established.

Moreover, with regard to (2) and (3) above, there is no motivating disclosure in the references of record that would have led one of ordinary skill in the art to combine the references in the manner suggested by the Examiner. The Examiner apparently believes that the disclosure in Chen that his oil-plasticized materials can be used in dental floss (page 3 of the Office Action) would have motivated someone of skill in the art to use an *oil plasticized styrene-ethylene-butylene-styrene block copolymer* in an elastomeric element of an oral brush. Applicants believe that this is an error for at least the following reasons. First, just because the materials of Chen can be used in a *dental floss* does not mean they are suitable for use in an elastomeric element in an oral brush. For example, Nylon 6,6 is commonly used as a dental floss material, but the material is not suitable as bristles in an oral brush because of poor mechanical properties, especially when wet. Second, Chen clearly teaches that *oil plasticized styrene-ethylene-butylene-styrene block copolymers* (except, apparently, his own formulations) would not have suitable mechanical properties. As for Chen's own formulations, a person of ordinary skill in the art would most likely be *repulsed* by the *gelatinous* formations because of their extreme softness and gel-like texture, rather than motivated to use such materials. Furthermore, a person of ordinary skill in the art would not expect that such soft *gelatinous* materials would be suitable in an elastomeric element of an oral brush.

Regarding the rejection of claims 59 and 60 as being obvious over J-128, in view of Dolinsky and Kuan, as applied to claim 55, and further in view of Muhler, Applicants submit that Muhler is directed a brush having abrasive-impregnated bristles, and does not disclose or even suggest an *oil plasticized styrene-ethylene-butylene-styrene block copolymer*, as required by claim 55. Accordingly, Applicants submit that claims 59 and 60 are allowable for at least the reason that they depend from allowable base claim 55.

Applicants respectfully submit that none of the rejections made by the Examiner are proper for at least the reasons set forth above. Applicants respectfully submit that all claims are in condition for allowance.

Please apply any charges or credits to deposit account 06-1050, referencing Attorney Docket No. 00216-368005.

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Respectfully submitted,

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